



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10

1200 Sixth Avenue  
Seattle, WA 98101

January 27, 2003

WAD 6819  
1/27/03  
8W

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Reply To

Attn Of: WCM-126

Mr. William Ernst  
Company Energy & Environmental Affairs  
The Boeing Company  
P.O. Box 3707  
MC 7A-WW  
Seattle, WA 98124-2207

Re: Conditional Approval - Transformer PCB Investigation Plan  
Boeing Plant 2, Seattle/Tukwila, Washington  
EPA ID No. WAD 00925 6819  
RCRA Docket No. 1092-01-22-3008(h)

Dear Mr. Ernst:

The United States Environmental Protection Agency (EPA) has completed review of the Draft Final Transformer PCB Investigation Work Plan (the Plan) (WESTON, December 2002). The Plan was submitted in accordance with the above referenced Administrative Order on Consent (the Order) and negotiated schedule. Per our telephone discussion in late November 2002 and subsequent e-mail of December 2, 2002, EPA agreed to extend the due date for the submittal of the Plan by one week. It is my understanding that extension was necessary to prepare a better quality document and to allow additional preparation time needed for meetings we held in December related to different issues.

On September 18, 2002 EPA provided Boeing with comprehensive comments on the initial submittal of the draft Transformer PCB Investigation Plan (WESTON June 2002). On September 30, 2002 Boeing requested, pursuant to Section 10.3 of the Order, a meeting to address EPA's comments. During this meeting which took place on October 28, 2002, both parties worked towards resolution of EPA's comments. Consequently, the December 2002 Plan incorporates many of the agreements reached during that meeting except items discussed in the enclosure to this letter.

In the spirit of moving the project forward, EPA approves the Plan, pursuant to Section 10 of the Order as final, with the stipulation that Boeing submits the revised Plan responsive to all of EPA's comments, within thirty (30) days from receipt of this letter.

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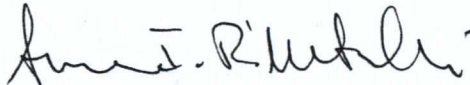


3014821

Boeing shall start Phase 1 mobilization in accordance with the schedule provided in Section 7 of the Plan. Please coordinate field sampling with EPA so we can have our representative present it in the field during this work.

Should you have any questions or require additional information regarding this letter, please don't hesitate to call me at 206/553-5122.

Sincerely,



Anna I. Filutowski

Enclosure

cc: Hideo Fujita, Ecology -NWRO  
Glen St. Amant, Muckleshoot Tribe  
David Powell, NOAA  
Wendy Brown, WA DNA  
Randy Carman, WA F&W

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PO Box 3707 - MC 1W-12  
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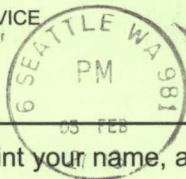
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Anna Filutowski  
Chemist  
US Environmental Protection Agency  
1200 Sixth Avenue - WCM-126  
Seattle, WA 98124-2207

### **Comments on Draft Final Transformer PCB Investigation Work Plan**

In general, the draft final Transformer PCB Investigation work plan is adequate with the existing data summary and rationale for the Transformer PCB Investigation. A few issues are identified and should be addressed in the Final Transformer PCB Investigation Work Plan. The issues are summarized below.

#### **Phase I Soil Sampling**

1. The draft final work plan specifies that subsurface soil samples will be collected for Phase I soil sampling using push-probe or hollow-stem auger drilling methods (section 4.3.1.1). However, the plan should also specify if surface soil samples (0 to 6-inches) will be collected at the area where pavement does not exist. The pavement coverage should be added to the soil sampling location map to justify no surface soil sampling on the paved ground.
2. A soil sampling location should be added at the center of the hexagon defined by SB-07228, SB-07233, SB-07229, SB-07220, SB-07217, and SB-07213 (Figure 5).

#### **Phase I Groundwater Sampling**

3. The draft final plan specifies that four existing monitoring wells will be sampled and analyzed for PCBs and total DOC. Water level data will also be collected. All four monitoring wells are located near the shoreline of Duwamish Waterway and are likely to be tidally influenced. Therefore, water level measurements taken before sampling at a random location on a random day and time may not represent the mean groundwater elevation and will not provide enough information to characterize the groundwater flow pattern. EPA recommends two approaches for water level measurements and flow pattern evaluation: (1) collect a 71-hour hourly water level data using transducer and data loggers at the four wells before field samples are taken and calculate the mean groundwater elevation using Serfes' filtering method (Serfes 1991), or (2) propose an approach to correct the single water level measurement and obtain the mean groundwater elevation based on the previous tidal study results at the same wells.
4. A minor comment on Figure 3. The "Groundwater Flow" arrow on the map should be changed to "Expected General Groundwater Flow Direction". There were no mean groundwater elevation contour lines on the map, therefore, the arrow indicates an interpretative general flow direction.



## Conceptual Site Model

5. Section 4.2.2.2, page 4.5. Top bullet on page: the conceptual site model (CSM) should acknowledge that the storm-water system from the release site to the sediment transports fine particulates that may contribute to migration pathways to the sediments. This is not clear from the statement made in the bullet, and or the next paragraph. Most significantly, though, is that no sampling is proposed *within* the storm-water pipes; so no direct measure of the importance of this pathway is made. Subsequent comments deal with the consequences of this in the sediment sampling regime.

## Phase 1 and Phase 2 - Sediment Sampling

6. Section 4.3.1.4, Sediment Sampling, page 4-8, Phase 1. The Phase 1 approach is well presented, and will serve to document near-shore concentrations. The third round bullet under 4.3.2, Phase 2, page 4-9, indicates that Boeing will review and possibly augment the Phase 1 sediment sampling coverage at a later time. The work plan does not indicate what that additional coverage would be, although Section 4.3 (Study Design) at the top of page 4-7 states that "the rationale that would prompt Phase 2 analyses is introduced in the following section." Boeing must provide a rationale which is acceptable to EPA for conducting a Phase 2 investigation.
7. (Continued from above.) Conditions that could require Phase 2 sampling would be significant PCB concentration trends at sediment surface and/or at depth away from the shoreline in the vicinity of the storm-water pipes. This finding supports an active surface or (more likely) storm-water preferential transport pathway from the vicinity of the transformer. EPA recommends that this be stated as a basis for moving to Phase 2, and that this potential preferential pathway be included in the conceptual site model.
8. (Continued from above.) Currently, additional samples are limited to soil, groundwater, and sediment. Another possible medium is soil or particulates inside the storm-water system. EPA recommends that soil and/or particulate sampling from the storm drains be conducted to evaluate whether this medium is a problem. If particulates from the storm drains are a problem, a possible corrective measure to be evaluated as per Section 4.3.2 would be to install a particle interceptor.
9. Section 4.3.1.4, Sediment Sampling, page 4-8, Phase 1 and Figure 4 The text in this section states that the proposed sediment sampling locations are illustrated on Figure 4. However Figure 4 does not show any new sediment sampling locations. Please indicate the sediment sampling locations on Figure 4.



## Quality Assurance

10. Work Plan (WP) Section 4.3.1.1, second paragraph, refers to a 19 point immediate vicinity grid, but Figure 5 shows only 16 points in the immediate vicinity (if the 2 missing points are put in, it would be 18). The number of samples for soils (300) and water (3) stated in Section 3.1 and Table 2 of the QAPP do not match the WP or Figure 5. If there are 16 immediate vicinity and 20 non-immediate vicinity samples taken at 7 depths, then 252 soils will be collected. If the 5 bank samples are only collected at one depth, that would make 257 soil samples. There would be 301 samples if 18 immediate, 20 non-immediate and 5 bank samples were all collected at 7 depths. These discrepancies must be resolved prior to field activities.
11. The plan is to use the SQS of 12 mg/Kg PCB OC for samples with TOC between 0.5 and 4% and the LAET (130 ug/Kg dry weight) for samples outside this TOC range. EPA recommends that the analytical laboratory be made aware of this goal so that if necessary, they can adjust 'clean' sample aliquot extraction size or reporting limits in order to meet these goals. There are % solid and/or TOC situations where these goals for non-detect samples cannot be met with the current detection limit of 67 ug/Kg.
12. TOC: The Pentec DSOA plan called for analysis via ARI SOP 602S. The Weston QAPP Tables 1 and 2 and the WP Table 2 call for SW846 9060, which is written for water, to report 0.1% in soil/sediment which corresponds to 1000 mg/kg. If there is a need for TOC to be comparable to previous work, it is recommended to follow the ARI SOP 602S (which is a melding/modification of Puget Sound Estuary Program (PSEP) and 9060). Otherwise, please include the ARI modifications to SW846 9060 for reporting soil/sediment results.
13. QAPP Table 1: It is unclear what the 95-105% in the precision and accuracy column means for grain size. Is this the acceptance limits for calibrating drying ovens and scales? Shouldn't there be a precision RPD expectation for laboratory duplicates or replicates?
14. QAPP and WP Table 2 holding times: For the Pentec DSOA plan, sediment samples initially analyzed for PCB and TOC were held to the traditional holding times/temperatures while samples to be analyzed at a later date were frozen to -18 degrees C so that a six month holding time could be used. PSEP allows freezing for sediment for TOC and PCB. Is there a reason why freezing can't be an option for samples that won't be analyzed within the 14 day holding time for samples that are just cooled to 4°C?
15. QAPP and WP Table 2: Grain size is missing from this table.

## 'Typographical' comments:

- A. WP section 4.3.2, the sub-sections are misnumbered.
- B. QAPP: there is no area for approval signatures on the title sheet (QAMS-005/80 calls for a title page with provision for approval signatures).
- C. QAPP section 2.1, Distribution list: the reference to section 3.1 of the Work Plan is inappropriate as 3.1 of the WP discuss the project/task organization. Since a distribution list was not required by QAMS-005/80, a simple 'NA' will suffice in this section.
- D. QAPP section 3.3.1, last two sentences, remove the reference to EPA sample numbers and replace it with 'nondescript Weston sample numbers'. If nondescript numbers will not be used, remove the whole last paragraph.
- E. QAPP section 3.3.1.3, first sentence, clarify that the intent is to use custody records similar to the CLP forms as actual CLP custody forms are for CLP use only.
- F. WP and QAPP: Table 2, The 8082A method has not yet been promulgated. The 8082 is the currently promulgated revision of the PCB method.



bcc: Rick Albright, EPA - OWCM  
 Allison Hiltner, EPA - ECL  
 Ravi Sanga, EPA - ECL  
 Lori Cohen, EPA - ECL  
 Howard Orlean, EPA - WCM  
 Anna Filutowski, EPA - RCU  
 Jamie Sikorski, EPA - RCU  
 Charlie Ordine, EPA - ORC  
 Martha Lentz, EPA - OEA  
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 Erika Hoffman, EPA - WOO  
 Laura Castrilli, EPA - OEA  
 Tong Li, Tetra Tech EM Inc.  
 Sharon Gelinas, Tetra Tech EM Inc.  
 John Wakeman, US ACE  
 Brad Helland, Ecology - NWRO  
 RCRA File 8a

Filutowski/ik:01-21-2003 Transformer PCB Investigation Comments no-2.wpd  
 01-21-2003 Transformer Investigation Transmittal Letter rev1.wpd

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